

IN THE CLAIMS:

Please CANCEL claims 27, 38-41, 43-45, 48-53, and 55 without prejudice to or waiver of their subject matter. Also, please AMEND claims 1-3, 8-17, 19-25, 28-31, 36, 42, 47, and 56-57, as follows.

1. (Currently Amended) An image printing processing method for executing an operation that causes a printing head[[],] having which is provided with a plurality of arranged printing elements[[],] to scan a plurality of times on a same line on a printing medium so that different printing elements are used in the plurality of scans to form dots on the same line, and an operation that causes the printing medium to be fed between the scans of the printing head, to print an image on the printing medium, said method comprising:

a first distributing step for, of first and second areas defined defines on the printing medium in relation to feeding said printing medium, distributing data for the dots to be formed on the same line of the first area by using mask patterns, among the plurality of scans; and

a second distributing step for distributing data for the dots to be formed on the same line of the second area, in which a deviation of dot forming location becomes larger than that in the first area, by using mask patterns, among the plurality of scans,

wherein the number of scans to which data distribution are performed in the first distributing step is the same as the number of scans to which data distribution are performed in the second distributing step, and

wherein data distribution division ratios of the mask patterns for the plurality times of scans, which are used for the first distributing step, are different from the data distribution ratios division rates of the mask patterns for the plurality times of scans, which are used for the second distributing step.

2. (Currently Amended) An image printing processing method as claimed in claim 1, wherein the first area is an area on the printing medium printable with to which the printing head ~~is capable of being used~~ when the printing medium is held fed by both an upstream roller and a down stream roller, both roller being provided for feeding the printing medium, and the second area is an area on the printing medium printable with to which the printing head ~~is capable of being used~~ when the printing medium is held fed by any one of the upstream roller and the down stream roller.

3. (Currently Amended) An image printing processing method for executing an operation that causes a printing head~~[,]~~ having which is provided with a plurality of ~~arranged~~ elements~~[,]~~ to scan a plurality of times on a same line on a printing medium so that different printing elements are used in the plurality of scans to form dots on the same line, and an operation that causes the printing medium to be fed between the scan of the printing head, to print an image on the printing medium, said method comprising:

a distributing step for distributing the data for the dots to be formed on the same line on the printing medium by using mask patterns, among the plurality times of scans,

wherein data distribution division ratios of mask patterns used when are differentiated between a case that the printing medium is in a first location in which the printing medium is held fed by both an upstream roller and a downstream roller, both rollers being provided for feeding the printing medium, are different from the data distribution ratios of most patterns used when and a case that the printing medium is in a second location in which the printing medium is held fed by any one of the upstream roller and the downstream roller.

Claims 4 to 7 (Cancelled).

8. (Currently Amended) An image printing processing method as claimed in claim 3 †, wherein on the second area, printing on the second area is performed using a part of the plurality of printing elements in the printing head during the plurality of scans between which a feeding operation by so that feeding of the printing medium is executed at a smaller feeding amount than the feeding amount in the first area is intervened.

Claim 9 (Cancelled).

10. (Currently Amended) An image printing processing method as claimed in claim 3 †, wherein the data distribution division ratios of the mask patterns used in the second distributing step are determined so that, of the plurality times of scans, for a scan the longer time separated from a predetermined scan, the higher data distribution the division ratio is determined.

11. (Currently Amended) An image printing processing method as claimed in claim 10, wherein the predetermined scan is a scan in which an accumulated error relating to feeding of the printing medium in the second area is maximum, and the distributing of data is performed for only the scan in which the accumulated error is smaller than a predetermined value.

12. (Currently Amended) An image printing processing method as claimed in claim 3 †, wherein a sum of the data distribution division ratios of the mask patterns used in the second distributing step is greater than 100%.

13. (Currently Amended) An image printing processing method as claimed in claim 12, wherein noises are added to the mask patterns for making the sum of the data distribution division ratios of the mask patterns to be greater than 100%.

14. (Currently Amended) An image printing processing method for executing an scanning operation that causes a printing head, having which is provided with a plurality of arranged printing elements[[],] to scan a plurality of times on a same line on a printing medium so that different printing elements are used in the plurality of scans to form dots on the same line, and an feeding operation that causes the printing medium to be fed between the scans of the printing head, to print an image on the printing medium, said method comprising:

a first distributing step for, ~~of first and second areas defined on the printing medium in relation to feeding said printing medium;~~ distributing data for the dots to be formed

on the same line of the first area on the printing medium by using mask patterns, among the plurality of scans the first area being printed during the plurality of scans between which the feeding operation by a first feeding amount is intervened; and

a second distributing step for distributing data for the dots to be formed on the same line of the second area on the printing medium, in which a deviation of dot forming location becomes larger than that in the first area; by using mask patterns, among the plurality times of scans the second area being printed during the plurality of scans between which the feeding operation by a second feeding amount smaller than the first feeding amount is intervened,

wherein the number of scans to which data distribution are performed in the first distributing step is the same as the number of scans to which data distribution are performed in the second distributing step, and

wherein the mask patterns used for the first distributing step are different from the mask patterns used for the second distributing step.

15. (Currently Amended) An image printing processing method as claimed in claim 14, wherein the each mask pattern used for the second distributing step is a pattern for forming a plurality of dots continuously in a feeding direction in each of the plurality times of scan.

16. (Currently Amended) An image printing processing method as claimed in claim 14, wherein the each mask pattern used pattern for the second distributing step is a

pattern for forming a plurality of dots continuously in a feeding and scanning direction ~~in each of~~
~~the plurality of times of scan.~~

17. (Currently Amended) An image printing processing method as claimed
in claim 14, wherein ~~the~~ ~~each~~ mask pattern used for the second distribution step area is a pattern
where dot printable positions is arranged at random for forming a plurality of dots, locations of
which area deviated randomly, in the plurality of times of scanning.

Claim 18 (Cancelled).

19. (Currently Amended) An image processing method as claimed in claim
~~14 †~~, wherein ~~a part of the plurality of printing elements in the printing head is used for printing~~
~~on the second area so that a~~ the second feeding amount of the printing medium for the second
area is set at $1/N$ (N is an integer greater than or equal to 2) of the first feeding amount for the
first area.

20. (Currently Amended) An image processing method for generating data
used in operation that causes a printing head having a plurality of printing elements to scan a
plurality of times on a same line on a printing medium so that different printing elements are
used in the plurality of scans to form dots on the same line, and an operation that causes the
printing medium to be fed between the scans of the printing head, to print an image on the
printing medium, said method comprising: a printing apparatus, which uses a printing head

provided with a plurality of arranged printing elements and performs a plurality of scanning with the printing head on a printing medium, between the plurality of times of feeding of the printing medium being executed, so that different printing elements are correspondingly used for a same scanning line to form dots for performing printing,

wherein if printing is performed performing a process relating to generation of dot forming data for printing in each of the plurality of scans on a second area in which a deviation of dot forming location becomes larger than that in a first area, the first and second areas being defined on the printing medium in relation to feeding said printing medium, wherein a process relating to generation of dot forming data for the second area printing in each of the plurality of scanning is different differentiated from the process relating to generation of dot forming data for the first area, the process relating to generation of dot forming data being a process using an index pattern in accordance with density level of a pixel.

21. (Currently Amended) An image processing method for generating data used in operation that causes a printing head having a plurality of printing elements to scan a plurality of times on a same line on a printing medium so that different printing elements are used in the plurality of scans to form dots on the same line, and an operation that causes the printing medium to be fed between the scans of the printing head, to print an image on the printing medium, said method comprising: a printing apparatus, which uses a printing head provided with a plurality of arranged printing elements and performs scanning a plurality of times with the printing head on a printing medium, between the plurality of times of feeding of

the printing medium being executed, so that different printing elements are correspondingly used for a same scanning line to form dots for performing printing;

wherein if printing is performed performing a process relating to generation of dot forming data for printing in each of the plurality of scans on a second area in which a deviation of dot forming location becomes larger than that in a first area, the first and second areas being defined on the printing medium in relation to feeding said printing medium, a process relating to generation of dot forming data for printing the second area in each of the plurality of scans is different differentiated from the process relating to generation of dot forming data for the first area, the process relating to generation of dot forming data being an error diffusion process.

22. (Currently Amended) An image processing method for generating data used in operation that causes a printing head having a plurality of printing elements to scan a plurality of times on a same line on a printing medium so that different printing elements are used in the plurality of scans to form dots on the same line, and an operation that causes the printing medium to be fed between the scans of the printing head, to print an image on the printing medium, said method comprising: a printing apparatus, which uses a printing head provided with a plurality of arranged printing elements and performs a plurality of scans with the printing head on a printing medium, between the plurality of times of feeding of the printing medium being executed, so that different printing elements are correspondingly used for a same scanning line to form dots for performing printing;

wherein if printing is performed performing a process relating to generation of dot forming data for printing in each of the plurality of scans on a second area in which a

deviation of dot forming location becomes larger than that in a first area, the first and second areas being defined on the printing medium in relation to feeding said printing medium, a process relating to generation of dot forming data for the second area printing in each of the plurality of scans is differentiated from the process relating to generation of dot forming data for the first area, the process relating to generation of dot forming data being a dither process.

23. (Currently Amended) An image printing processing method as claimed in claim 14, wherein the printing head is capable of forming at least first color dots and second color dots, and the mask patterns used for the second distributing step are different between the first and second color.

24. (Currently Amended) An image printing processing method as claimed in claim 14, wherein the mask patterns used for the second distributing step are different depending on printing modes.

25. (Currently Amended) An image printing processing method as claimed in claim 14, wherein the printing head is capable of forming two or more sizes of dots and the mask patterns used for the second distributing step are different in accordance with the size of dot formed.

Claim 26-27 (Cancelled).

28. (Currently Amended) A control method for a printing apparatus, which uses a printing head ~~having provided with~~ a plurality of arranged printing elements and performs scanning with the printing head relatively to a printing medium so as to perform printing,

wherein if printing is performed on a second area in which a deviation of dot forming location becomes larger than that in a first area, the first and second areas being defined on the printing medium in relation to feeding said printing medium, feeding of the printing medium is executed at the same feeding amount as the first area, a range of printing elements used is changed by shifting the printing elements used without changing a number of printing elements which is a number of printing elements used for the first area, and printing is controlled to be performed with the changed printing elements.

29. (Currently Amended) An image processing apparatus ~~for generating data used in a printing apparatus~~ for executing an operation that causes a printing head ~~having; which is provided with~~ a plurality of arranged printing elements~~[,]~~ to scan a plurality of times on a same line on a printing medium so that different printing elements are used in the plurality of scans to form dots on the same line, and an operation that causes the printing medium to be fed between the scans of the printing head, to print an image on the printing medium, said apparatus comprising:

first distributing means for, of first and second areas ~~defined defines~~ on the printing medium in relation to feeding said printing medium, distributing data for the dots to be formed on the same line of the first area by using mask patterns, among the plurality of scans; and

second distributing means for distributing data for the dots to be formed on the same line of the second area, in which a deviation of dot forming location becomes larger than that in the first area, by using mask patterns, among the plurality of scans,

wherein the number of scans to which data distribution are performed in the first distributing means is the same as the number of scans to which data distribution are performed in the second distributing means,

wherein data distribution division ratios of the mask patterns for the plurality of scans, which are used for said first distributing means, are different from the data distribution ratios division rates of the mask patterns for the plurality of scans, which are used for said second distributing means.

30. (Currently Amended) An image processing apparatus as claimed in claim 29, wherein the first area is an area on the printing medium recordable with to which the printing head ~~is capable of being used~~ when the printing medium is held fed by both an upstream roller and a down stream roller, both roller being provided for feeding the printing medium, and the second area is an area on the printing medium printable with to which the printing head is ~~capable of being used~~ when the printing medium is held fed by any one of the upstream roller and the down stream roller.

31. (Currently Amended) An image processing apparatus for generating data used in a printing apparatus for executing an operation that causes a printing head having; which is provided with a plurality of arranged elements[[],] to scan a plurality of times on a same

line on a printing medium so that different printing elements are used in the plurality of scans to form dots on the same line, and an operation that causes the printing medium to be fed between the scan of the printing head, to print an image on the printing medium, said apparatus comprising:

distributing means for distributing the data for the dots to be formed on the same line on the printing medium by using mask patterns, among the plurality of scans,

wherein data distribution division ratios of mask patterns used when are differentiated between a case that the printing medium is in a first location in which the printing medium is held fed by both an upstream roller and a downstream roller, both rollers being provided for feeding the printing medium are different from the data distribution ratios of mask patterns used when, and a case that the printing medium is in a second location in which the printing medium is held fed by any one of the upstream roller and the downstream roller.

Claim 32-35 (Cancelled).

36. (Currently Amended) An image processing apparatus as claimed in claim 31, wherein ~~on the second area, printing on the second area is performed using a part of the plurality of printing elements in the printing head during the plurality of scans between which a feeding operation by so that feeding of the printing medium is executed at a smaller feeding amount than the feeding amount in the first area.~~

Claim 37-41 (Cancelled).

42. (Currently Amended) An image processing apparatus for generating
data used in a printing apparatus for executing an scanning operation that causes a printing head
having, which is provided with a plurality of arranged printing elements[[],] to scan a plurality of
times on a same line on a printing medium so that different printing elements are used in the
plurality of scans to form dots on the same line, and an a feeding operation that causes the
printing medium to be fed between the scans of the printing head, to print an image on the
printing medium, said apparatus comprising:

~~first distributing means for, of first and second areas defined on the printing
medium in relation to feeding said printing medium; distributing data for the dots to be formed
on the same line of the first area on the printing medium by using mask patterns, among the
plurality of scans the first area being printed during the plurality of scans between which the
feeding operation by a first feeding amount is intervened; and~~

~~second distributing means for distributing data for the dots to be formed on the
same line of the second area on the printing medium, in which a deviation of dot forming
location becomes larger than that in the first area, by using mask patterns, among the plurality of
scans the second area being printed during the plurality of scans between which the feeding
operation by a second feeding amount smaller than the first feeding amount is intervened,~~

wherein the number of scans to which data distribution are performed in the
first distributing means is the same as the number of scans to which data distribution are
performed in the second distributing means,

wherein the mask patterns used for said first distributing means are different
from the mask patterns used for the second distributing means.

Claims 43-46 (Cancelled).

47. (Currently Amended) An image processing apparatus as claimed in claim 42 29, wherein ~~a part of the plurality of printing elements in the printing head is used for printing on the second area so that a the first feeding amount of the printing medium for the second area is set at 1/N (N is an integer greater than or equal to 2) of the second feeding amount of the first area.~~

Claims 48-55 (Cancelled).

56. (Currently Amended) A printing apparatus, which uses a printing head ~~having provided with a plurality of arranged~~ printing elements and performs scanning with the printing head relatively to a printing medium so as to perform printing,

wherein if printing is performed on a second area in which a deviation of dot forming location becomes larger than that in a first area, the first and second areas being defined on the printing medium in relation to feeding said printing medium, feeding of the printing medium is executed at the same feeding amount as the first area, a range of printing elements used is changed by shifting the printing elements used without changing a number of printing elements which is a number of printing elements used for the first area, and printing is controlled to be performed with the changed printing elements.

57. (Currently Amended) A storage medium in which a program is stored readably by a computer, the program being provided for generating data used in a printing apparatus for executing causing the computer to execute an operation that causes a printing head having, which is provided with a plurality of arranged printing elements[[,]] to scan a plurality of times on a same line on a printing medium so that different printing elements are used in the plurality of scans to form dots on the same line, and an operation that causes the printing medium to be fed between the scans of the printing head, to print an image on the printing medium, said program including method comprising:

a first distributing step for, of a first and second areas defined defines on the printing medium in relation to feeding said printing medium, distributing data for the dots to be formed on the same line of the first area by using mask patterns, among the plurality of scans; and

a second distributing step for distributing data for the dots to be formed on the same line of the second area, in which a deviation of dot forming location becomes larger than that in the first area, by using mask patterns, among the plurality of scans,

wherein data distribution division ratios of the mask patterns for the plurality of scans, which are used for the first distributing step, are different from data distribution ratios division rates of the mask patterns for the plurality of scans, which are used for the second distributing step.

58. (Currently Amended) A program for causing a computer to execute an image processing for a printing apparatus, which uses a printing head; which is provided with

having a plurality of arranged elements, to scan a plurality of times on a same line on a printing medium so that different printing elements are used in the plurality of scans to form dots on the same line, and an operation that causes the printing medium to be fed between the scan of the printing head, to print an image on the printing medium, said program including method comprising:

a distributing step for distributing the data for the dots to be formed on the same line on the printing medium by using mask patterns, among the plurality of scans,

wherein data distribution division ratios of mask patterns are differentiated between a case that the printing medium is in a first location in which the printing medium is fed by both an upstream roller and a downstream roller, both rollers being provided for feeding the printing medium, and a case that the printing medium is in a second location in which the printing medium is fed by any one of the upstream roller and the downstream roller.

59. (New) An image processing method as claimed in claim 7, wherein duty in the masking process for each of the plurality of times of scanning on the second area is differentiated from the duty for the first area.